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ART. XXX.—*Memoranda on the Rivers Nile and Indus*,
by CAPTAIN T. POSTANS.

(Read April 8, 1843.)

HAVING had the advantage of journeying through the Deltas, and for nearly 400 miles up the two famous rivers of Asia and Africa (the Indus and the Nile), I venture to record briefly my general impressions on these two grand features of nature.

The Nile runs in a direction directly contrary to that of the Indus, and has its source in the most torrid regions of the globe, whilst the Asiatic stream rises in perpetual snow. The climates, therefore, are directly reversed; yet, passing through the same degrees of latitude, there are in some portions of the countries penetrated by the two rivers very curious coincidences in productions and climate, to which we will refer hereafter.

The Nile, in its greatest size and volume, falls very far short of the magnitude of the Indus; its rate of progress being, moreover, not more than two miles and a half per hour, or three¹ at its most rapid season; whilst the Indus rushes on at a general rate of five miles, and in the height of its inundations does not average less than between seven and eight. The course of one river is uniform and quiet, that of the other liable to sudden overwhelming torrents. I have seen the Indus throw an iron steamer of sixty horse power on its banks, and render it as totally unnavigable as a common boat for a distance of several miles, and all within the space of a few minutes; when the flood would again assume its usual current. The season of inundation of the Nile begins when the Indus is usually at its greatest elevation, the comparative rise of each river being difficult to determine, for the Indus lying in shallow banks overspreads the surrounding country. At Bukkur, where the Indus is confined by rocky barriers, an *Indus-meter* might be applied with advantage. Lieutenant Wood's admirable reports on this head however are very full and satisfactory.

The bed of the Nile has the great advantage over the Indus of being deep and uniform: the soil through which it passes is formed, or materially so, by its own deposit, the argillaceous nature of which does not appear to render it liable to be acted upon, to any great extent, by the current. In the higher parts of the river,

¹ Bruce says three at its greatest velocity.

moreover, (that is, from Cairo to the Cataracts) it is confined by rocky barriers, with often a very small extent of soil¹, and at other times, the limestone hills² alluded to, hedge it in completely for many leagues. The Indus, on the contrary, passes through light and shifting soils, mostly composed of fine sand; or constantly carries with its rapid current an immense portion of its banks; and thus the main stream is continually shifting and its bed undergoing complete alterations. The navigation of the two rivers is thus directly opposed: the facilities on the Nile are so great as to admit, at all seasons and at all times, of the largest boats traversing the stream for nearly 500 miles, without any risk of interruption, whilst on the Indus the highest flood is that alone which admits of extensive navigation, and even then the most experienced pilots are baffled in keeping to the clear channel. During the withdrawal of the inundations the Indus is beset with difficulties, and sand-banks are encountered at almost every turn. The Nile, on the contrary, sinking to its ordinary level, still admits, in a sufficiently deep and wide channel, of plenty of water and easy navigation. The Nile, however, must fill very rapidly at times, for I saw between Benisouef and Cairo, in November, a large boat high 'and dry inland, at least one quarter of a mile from the then western bank of the river; she had all her rigging standing, and my boatmen expressed the greatest anxiety not to ground away from the deep channel, as in such case they might not get off again.

The craft employed on the two rivers are totally dissimilar, and it is extraordinary to observe that where there is the least danger to the navigation, (whether from the violence of the stream, depth of water, and absence of fierce tornadoes,) there the boats are of the strongest and most serviceable description. Those employed on the Nile are apparently adapted more for rough sea than river work, being built exactly on the model of shore-going craft, keeled and not flat-bottomed, except that the rudder is too large, and rather more exposed to violence than would be consistent with marine purposes. Those in common use on the Indus are, on

¹ Sir G. Wilkinson says, "The average breadth of the valley from one mountain range to another, between Cairo in Lower and Edfu in Upper Egypt, is only about seven miles, and that of the cultivable land, whose limits depend on the inundation, scarcely exceeds five and a half."—Ch. iii., p. 216.

² It has been suggested by a competent geologist, that there is a great affinity between the formation of these hills and the whole of the Red Sea and Arabian Gulf formations, and those to the westward of the Indus; the geology of both countries however is a neglected point, and I offer the remark *en passant*.

the contrary, flat-bottomed, of the most frail and light description, and fastened together so loosely, and composed of such unserviceable materials as to go to pieces the moment they are exposed to the least violence; a few minutes on the sand-bank, with a strong breeze, soon settles an Indus boat. (See Wood's Report.) A much larger kind of boat is used on the Nile than on the Indus, often carrying 1500 ardebs, about two hundred tons English, and measuring eight or ten feet water. The jumpṭī, or state barge of the Amceers, used in the lower part of the River Indus, will probably draw about three feet to three feet and a half water. The traffic on the two rivers is immeasurably dissimilar. The Nile, in every part of its stream which I have visited, is alive with boats of every size and description. This is, however, to be attributed to the populous country traversed by the latter, strikingly contrasted with the jungly and depopulated wastes through which the Indus flows, and where you may often journey for days, without seeing a sail or sign of human industry. Tracking on the Nile is little resorted to, the winds are generally up or down and shift regularly, so that the boatmen always wait for a fair wind; the craft are too unwieldly, moreover, for tracking by manual labour, though the banks of the river are admirably suited to it. On the Indus it is impossible to track during the inundation from Schwan upwards; the circuitous route by the Arral and Narrah rivers is pursued to avoid the main stream.

As my experience confines me on the Indus to that lower portion of the river lying between Bukkur and the sea, I shall offer a few remarks on the comparative state of the country on its banks with that of the Nile for about the same distance, viz.: from the sea to the cataracts. The soil of Egypt is said to be the gift of the Nile, and certain it is, that beyond its immediate influence, the Libyan desert on the one side, and the rocky barriers of Arabia on the other, present insurmountable obstacles to fertility of any kind; yet is Egypt one of the most productive countries in the world. From Cairo, upwards, the portion of soil cultivated is in most places extremely small¹, except in such valleys as that of Siout and Manfaloot, where a greater expanse admits of greater deposit of tillable land, thus offering a striking contrast to the Indus, where there is an unlimited extent of soil, and where population and industry are alone required to carry its waters over the whole valley, even to the foot of the distant mountains which surround it on the west-

¹ See former note.

ward. On the Nile, on the contrary, the height of vegetation is in juxtaposition with perfect sterility. On looking along the eastern bank of the Nile from an eminence, the most beautiful verdure is marked by a clearly defined line of the great desert, and has a most singular effect. In one country, however, the value of the rich gift bestowed by nature is truly estimated; in the other it is almost unknown. The Nile does not flow in vain through Egypt; not an inch of its rich, though comparatively limited soil is left unappropriated, whilst on the larger river the gift is totally neglected, and all the unbounded capabilities of the country are totally disregarded. Were the reverse the case, there can be no doubt from the unlimited extent of soil capable of being cultivated, (whether in the Delta or higher parts of Sindh,) and the facilities afforded for leading the waters of the Indus to any extent from its banks, that the latter country would not only rival but far surpass Egypt in productiveness. The Indus flows through plains of immense extent, with scarcely any deviation of soil; the desert being only that portion where the waters of the river do not extend, though possessing exactly the same description of surface soil. The gradual slope of such plains from the banks of the river admit of unlimited irrigation¹, and as if to point out to man the value of her gifts, the Indus constantly overflows large tracts of land, without, however, nourishing other vegetation than that of luxuriant jungles.

The soil of Egypt, though of such partial extent (except in the Delta), is, however, far richer than that of the Indus, as shown in its dark, loamy texture, and the power it possesses of yielding three crops annually; whilst in Sindh the soil will not bear more than one crop (of juwaree or wheat) biennially on the same spot.

The deltas of all large rivers are generally their richest and most productive portions. So it is with the Indus and the Nile, but particularly with the latter. Large towns, abundant population, and extensive plains, richly cultivated, attest the extreme richness and productiveness of this portion of the Nile. The Delta of the Indus yields also more than any other portion of Sindh, and is proportionably more thickly populated, though, if we except Tattah, at its apex, there are no places of unusual size and importance. In the Delta of the Nile large canals, faced with masonry towards their embouchures from the river, are of frequent occurrence. Here

¹ The foot of the Bolan Pass, 150 miles in a north-westerly course from the river, is said to be about 700 feet above the level of the sea, from which it may be distant about 350, which would give, at a rough calculation, about two feet of fall per mile.

Mahomet Ali did not allow even forty-eight miles to intervene between the sea and the river. In nearly the same relative position on the Indus, the space of about fifteen miles would alone be required to be cut through, or rather an old canal to be opened, to effect the same object. The productions of Egypt have a great affinity to those of Sindh, particularly in that portion of the river where the latitudes agree, or nearly so; taking, for instance, Cairo upwards¹ and the upper portions of the river Sindh at Subzulkote, we find the staple grains, spring and winter crops, are wheat and dhurra (*holcus sorghum*, or the juwaree of India). The seasons for crops are precisely the same, the wheat being sown in November and December, and reaped in April, the dhurra being, as in Sindh, the great winter crop. Thus in sailing up the Nile during the month of November, the juwaree crops, which cover every cultivated portion of the river's banks, induce the belief that the traveller is on the Indus at the same season. This particular grain, however, obtains a far greater luxuriance in Upper Sindh than in Egypt. I have seen the stalk in the neighbourhood of Shikarpore measure sixteen feet, and one head weigh fourteen ounces avoirdupois. The dhurra of Egypt does not look half so fine. Barley, flax, hemp, tobacco, castor-oil, indigo, hennah, sesamum, cotton (exactly the same plant as is grown in Sindh), and sugar-cane, are peculiar to both rivers; esculent plants and melons of various kinds being sown in the spare corners of the grain fields. The bendy (egg-plant) and onions are the common vegetables of both. The larger trees consist of the date, mulberry, baubul, and acacia, (or, as it is called on the Nile, the acacia Nilus): this last attains great size in Upper Sindh. The date, in both countries, is a great staple of food, and cultivated accordingly; the season for gathering it, however, is somewhat later on the Nile, than under the same latitude of the Indus: limes and oranges are abundant in both countries, though more extensively cultivated on the Nile. The water kine, or buffaloes, are plentiful on both rivers; camels, mules, and donkeys are also abundant. The Nile and Indus are equally favourable to fowls, and villagers are abundantly provided with poultry. The almost total absence of any tree, except the palm, from Cairo upwards, is very peculiar, the mimosa Arabica being only occasionally seen, and then of a very stunted description, whilst the luxuriant jungles on the whole line of the Indus, through Sindh, attest the richness of the soil, and at the same time its total want of cultivation.

¹ Cairo is in 30°; Sukkur about 28°; and the extent of Sindh, N., is about 30°.

The condition of the mass of the people on both rivers appears to be much alike. The Arab villages are composed of the same rude and temporary materials as those of the Indus, being either of mud, flat-roofed, or of reeds¹. The same apparent squalor and misery is observed on both rivers; the difference being, that I believe the Fellah of Egypt tills the earth for the ruler to reap the produce, who leaves him but a bare subsistence; whilst in Sindh the river yields in fish nearly all that is required for the maintenance of a scanty population, and the soil may be said to be secondary as a means of existence generally. The splendid buildings used as the manufactories of Mahomet Ali, which are everywhere to be seen on the Nile, tell only of his harsh monopolizing system, but do not prove an iota more than the jungles of Sindh, that the core is not rotten, and that the bulk of the population of the most productive countries in the world is not the most miserable. The same remark will apply to the large towns to be met with on the Nile, with an exterior of prosperity little sustained by a closer inspection. There is, in short, in Egypt a surface of prosperity which is totally false, and will not bear examination, for the whole system is forced and radically wrong, particularly as respects the working classes. An overgrown and useless military force, whose regiments are often stationed on the Nile, in villages which do not boast more than a dozen mud hovels, (I have seen a full band practising on a dung-heap near a village of this description,) machinery and improvements, only compatible with great wealth and an advanced state of civilization, eat into the marrow of the state, and the poor Fellah, or cultivator, whose condition in Egypt, as elsewhere, is the touchstone of the whole system, is ground to the earth to provide for the utter follies, to call them by a mild term, of the ruler who would fain be before his time. I will take, for example, whilst on this subject, one of Mahomed Ali's cotton manufactories, which I visited on the Nile, and a better proof could hardly be afforded of the hollow, forced system now pursued in Egypt. These buildings are exceedingly handsome stone edifices, which look strangely incongruous near towns probably composed entirely of wretched mud hovels. The machinery employed is exactly on the same model as that used in Europe, with the latest improvements, except that the power em-

¹ The Jutts of Sindh and Fellahs of Egypt, the cultivating classes of both countries, are in about the same relative condition. The Jutts, there is every reason to believe, are the aborigines of Sindh, converted to Islamism in, and subsequent to the invasion of Ben Cassim. The Copts, like the Jutts, are the most degraded of all classes.

ployed is by eight bullocks to a wheel, four wheels being used in each manufactory. Much is of course done by hand that at home would be performed by machinery. The division of labour, carding, spinning, &c., indeed, everything connected with the establishment, shows the most scrupulous care on the part of the superintendants, who are Arabs, principally educated by Europeans (Frenchmen). The raw material is collected in lieu of tax (a system generally adopted in the East of levying in *kind*): the whole of the labour is *forced*, and the rates paid are according to the work performed, in the first instance, and, secondly, according to the total expenses of the establishment for any given period. Thus, if the latter will admit of a sufficient profit to the Pasha, the rate fixed as a maximum is about one and a quarter pence per day¹ to each labourer for twelve hours' work; but this may be decreased according to the circumstances alluded to. The cloth, when ready, is sold by *force* to the merchant at about fifty per cent. higher than he could purchase the same imported. The texture is exceedingly coarse, and would be considered by us in India even as of very inferior quality. The accounts are kept by Copts, who have a separate office for the purpose. Such an establishment as the above employs about 1500 workmen, and can produce about 1000 pieces of cloth monthly. Such is a brief sketch of one of the Pasha's *improvements* and monopolies; having, obviously, the following results:—Oppression to the operative in *forcing* him to work at a rate inconsistent with his wants; in no country in the world can a man feed himself and his family for one and a quarter pence per day! Secondly, oppression to the cultivator, in not allowing him a fair market and profit on his produce; crippling also his energies, as he is taxed exactly according to his produce, and not according to the land he cultivates. And, lastly, oppression to the consumer, in *obliging* him to pay fifty per cent. higher for an inferior article, simply because it is of home manufacture, and the profits upon its production required by the ruler. There are sugar manufactories in Egypt, precisely on the same principle. Previous to the manufacturing system of cotton in Egypt, the whole attention was paid to the improvement of the plant; and had this been pursued, it would have acted with far different results; for it was found to compete with the American, and proved highly valuable; but Jumel, the Frenchman who superintended the cotton improvements of Egypt, being, like all the needy adventurers who make a tool of Mahomed Ali, anxious to fill

¹ 20 paras = to $\frac{1}{4}$ a piastre, or 2½d.

his pockets at any sacrifice, projected the using the raw material on the spot, with the results to the country which have been seen. Thus it would appear, to sum up the comparative state of the inhabitants of Egypt and Sindh, that they suffer from systems exactly opposed to each other: the one being that of would-be improvement misplaced; the other, no improvement at all. The ruler of one country oppresses by ambitious and impracticable projects, those of the other by selfish gratification and total apathy as to the state of their people and country. But in both the wretched inhabitants may be said to starve in the midst of plenty; and mal-administration prevents those great gifts, which nature has so unsparingly lavished, being adequately developed to the improved condition of their inhabitants. Egypt formerly fed seven millions¹ of people, and provided grain for exportation; now she with difficulty sustains two millions and a half. The inhabitants of Sindh live with difficulty in a country where the seed has only to be cast on the waters to be found after a certain number of days. Sindh could easily be made to yield sufficient grain for the consumption of Cutch and Kattywar, whose famines might be of seven years' extent, and still be supplied. The population of Sindh does not exceed a million, and these are barely subsisted.

The Nile abounds in fish, but it is not an article in such general use as on the Indus, where it forms the principal, and, indeed, the only food of a large proportion of the population.

The colour of the waters of the two rivers is very dissimilar. The Nile, during its inundation, changes from a blue tint to one of deep red, or rather brick-dust colour, probably induced by a great quantity of oxyde of iron, which is held in suspension; and hence its salubrity. The Indus is of a muddy stone colour at all times, but is capable of greater purity, after filtration, than the Nile, though it is not so wholesome. The water of the Nile certainly merits, from my experience, all the encomiums which the inhabitants bestow on their "beloved river."

To conclude. Were the policy of Mahomed Ali only exercised to a *certain* extent in Sindh, we should see that that country possesses far greater capabilities than any of equal extent on the Nile; and the boasted richness of Egypt would not only be rivalled, but in the course of time, far surpassed. The population of Sindh is far more vigorously disposed than that of Egypt, and, with a fostering and energetic policy, its jungly wastes would soon be made to

¹ Herodotus,

teem with the richest productions of the East. Measures are, it is to be hoped, in progress, which will tend to bring about this desirable end.

I have not had sufficient experience to enable me to draw any satisfactory comparison between the climates of the countries, Sindh and Egypt (as far as the distances agree); but I am inclined to believe there is a great similarity. The seasons are much alike, and are divided into the hot and cold, without any very marked gradations of spring and autumn; they agree in the almost total absence of rain, except in the Deltas. I should say the extremes were greater in Upper Sindh than in Egypt; thus, I have seen the thermometer at Shikarpore on the 5th of November, at 40° , and ice is by no means uncommon. In Egypt I never recollect it, though I was there during the coldest season. The Khamsin of the latter, can hardly however be so bad as the Simooms of the deserts of Sindh; in one they obtain only for fifty days, in the latter for four months, though the natives pretend that there is a *Chehel-raz* only of this trying blast. The thermometer, at Shikarpore, during the month of July is 106° to 110° in the shade; on board a steamer on the Indus, in the latter end of August last, it was 106° on deck under an awning, at 2 p.m., and it often reaches 115° . The Deltas of both rivers are noted for tremendous dews, and in Egypt with the additional disadvantage of fogs; the air in both is clear, (except in Sindh, where the loose drift sand is blown up, when the effect of a fog is produced,) and the skies cloudless.

Of medical statistics I can say but little; though I question whether, taken generally, Sindh is not healthier than the valley of the Nile, as witnessed in the awful plagues which periodically visit man and beast; the last visitation whilst I was in Egypt, killed 140,000 horned cattle. The inhabitants certainly have a much healthier and more robust appearance in the former, particularly the northern part of the river, and are far more active and capable of fatigue than the river Arabs. The boatmen and fishermen of Sindh are a remarkably muscular and finely formed race. The same description of climate however acts very differently on the disposition of the inhabitants of both countries. In Egypt, the people are wonderfully cheerful and laughter-loving, the Nile resounds with the songs of the boatmen, and five or six Arabs cannot collect without the "*darabooka*," and a dance of the most grotesque, though not always of the most decent description. Drollery is inherent in the modern Egyptians, as may be witnessed in the buffoons who daily exhibit at Cairo and throughout

the country; but in Sindh, the people are morose, and, if not sullen, at least very dull and melancholy in their general behaviour; they have the advantage however of decorum and propriety; a Sindhian of the lowest order even would be horrified at the total want of decency and disgusting laxity of the inhabitants of the valley of the Nile, only to be rightly understood by those who are acquainted with the vernacular. I should imagine it impossible to produce a more outrageously indecent people than the middle and lower orders in Egypt.

It can hardly fail to strike the traveller that there is a great similarity in these two rivers, between the ports by which both are accessible from the sea; Karachee is to the Indus what Alexandria is to the Nile, and in our hands who is to say that increased population, the result of good government, shall not hereafter bring about such a revolution in the state of the country watered by the Indus, as to make Karachee the Alexandria of the Indian Ocean?
